

ABSTRACT OF THE DISCLOSURE

A virtual private network for communicating between a server and clients over an open network uses an applications level encryption and mutual authentication program and at least one shim positioned above either the socket, transport driver interface, or network interface layers of a client computer to intercept function calls, requests for service, or data packets in order to communicate with the server and authenticate the parties to a communication and enable the parties to the communication to establish a common session key. Where the parties to the communication are peer-to-peer applications, the intercepted function calls, requests for service, or data packets include the destination address of the peer application, which is supplied to the server so that the server can authenticate the peer and enable the peer to decrypt further direct peer-to-peer communications.

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